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EXAMINER

HESS, MICHAEL THOMAS

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3709

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/769,974

Applicant(s)

WILLEN, DAG

Examiner

Michael T. Hess

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,8 and 10-15 is/are rejected.
- 7) ☒ Claim(s) 7 and 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/600,554.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 02/02/2004.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

- Page 3, Line 35 – the word “scre n” should be “screen.”
- Page 5, Line 33 – the word “ach” should be “each.”

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 3 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "several" in claims 3 and 5 is a relative term, which renders the claim indefinite. The term "several" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The term "several" is imprecise and because it is not specifically defined its meaning is ambiguous.

Therefore applicant has failed to point out and distinctly claim the subject matter which applicant regards as the invention.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite because the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 5 recites the broad recitation "each of the phases is constructed by one or several individual conductors" and the claim also recites "such as tapes" which is the narrower statement of the range/limitation.

NOTE: IN VIEW OF THE 35 U.S.C. § 112, ¶2 REJECTIONS ABOVE, CLAIMS 3 HAS BEEN REJECTED ON PRIOR ART AS BEST UNDERSTOOD BY THE EXAMINER. IN VIEW OF THE 35 U.S.C. § 112, ¶2 REJECTIONS ABOVE, THE LACK OF A PRIOR ART REJECTION OF CLAIM 5 SHOULD NOT BE VIEWED AS AN INDICATION OF ALLOWABLE SUBJECT MATTER.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 2, 4, 6, 8, 10-15 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,448,501 to McIntyre et al (McIntyre).

In Reference to Claims 1 and 14

A method for constructing a superconducting cable comprising N phases, the method comprising the steps of

providing each phase in the cable in the form of a number of phase conductors (Ref. #s 24a, 24b, 24c; Col. 11, Lines 17-20),

classifying the phase conductors in N-phase groups (Fig. 3A, each filament 30 is a different group because it contains each phase conductor Ref. #s 24a, 24b, 24c), each N-phase group comprising a phase conductor from each of the N different phases (Fig. 3A), where N is greater than one (there are three possible phases: Ref. #s 24a, 24b, 24c), and where the number of N-phase groups is larger than or equal to two (Fig. 3A; each filament 30 is a group containing Ref. #s 24a, 24b, 24c),

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arranging insulation means in the cable around each phase conductor or between assemblies of phase conductors, and providing that said N-phase groups are electrically insulated from each other (superconducting strands are insulated if they will be touching within a coil, see Col. 2, Lines 36-38; see also, insulation around filaments 30 in Fig. 3A), and

providing the N-phase groups or assemblies of N-phase groups with a common electrical screen (Ref. # 22).

In Reference to Claim 2

A method according to claim 1, wherein the individual phases only contain superconducting cable wire (Col. 11, Lines 17-20) and an insulation system (it is known in the art to insulate superconducting wires if they will be touching within a coil, see Col. 2, Lines 36-38).

In Reference to Claim 4

A method according to claim 1 or 2 wherein the N-phase groups or each of the assemblies of N-phase groups are arranged so that the phase conductors form N flat phases (See Fig. 3A, assembled 12a).

In Reference to Claim 6

A method according to claim 1, wherein all N-phase groups are gathered in one assembly which is surrounded the common electrical screen (See Fig. 3A).

In Reference to Claim 8

A method according to claim 1, wherein the phases in each N-phase group or assembly of N-phase groups are separately and electrically isolated from each other (as

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noted above, it is known in the art to insulate superconducting cables if they will be touching within a coil).

In Reference to Claim 10 and 15

A method according to claim 1, wherein the number of N-phases is larger than 10 or 100 (Col. 9, Lines 14-19; one having ordinary skill in the art would know that N can be larger than 10 or even 100).

In Reference to Claim 11

A method according to claim 1, wherein the electrical screen is kept at 0 potential (it is known in the art to keep the screen at 0 potential because the energy travels through the superconducting strands) and consists fully or partially of superconducting (Col. 11, Lines 17-20) metallic and semiconducting materials or of a combination of these materials with non-conducting materials and composites and is positioned close to the electrically insulating material.

In Reference to Claim 12

A method according to claim 1, wherein the individual phases in each N-phase group or assembly of N-phase groups have such permittivity that the individual phases co-operate magnetically (Col. 8, Lines 17-20).

In Reference to Claim 13

A method according to claim 1, wherein at least one of the phases is constituted by a neutral conductor (Ref. # 20a).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over McIntyre in view of U.S. Patent No. 4,327,244 Horvath et al. (Horvath).

In Reference to Claim 3

McIntyre teaches:

a method according to claim 1 or 2.

However, McIntyre fails to teach:

wherein the N-phase groups are arranged in a number of coaxial groups, either with several different phase conductors corresponding to different phases in each coaxial layer or with each individual phase conductor of a particular phase in a separate coaxial layer.

Horvath teaches:

wherein the N-phase groups are arranged in a number of coaxial groups (See Fig. 4f), either with several different phase conductors corresponding to different phases in each coaxial layer or with each individual phase conductor of a particular phase in a separate coaxial layer (Fig. 4f, Ref. #s 140, 141, 142 and 146, 147, 148; Col. 6, Lines 1-12) in order to increase the utility of the different phases.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have use the different phase conductors allocation of Horvath in the method of constructing a superconducting cable in McIntyre in order to increase the utility of the different phases as implicitly taught by Horvath.

Allowable Subject Matter

8. Claims 7 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In Reference to Claim 7

A method according to claim 6, wherein the N phases are arranged concentrically with concentric insulation between each of the N phases is allowable subject matter over the prior art, while N-phases arranged concentrically and concentric insulation is known, the combination of insulation with other limitations was not found or fairly taught by the prior art..

In Reference to Claim 9

A method according to claim 1, wherein the phases in each N-phase group or assembly of N-phase groups are isolated from each other by a common insulator is allowable subject matter over the prior art.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- U.S. Patent Nos. 3,736,656 to Aupoix et al. and U.S. Patent No. 5,528,824 to Anthony et al. are relevant prior art because they disclose similar methods and resulting product of a superconducting cable as to Applicant's claimed invention.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael T. Hess whose telephone number is 571-270-1994. The examiner can normally be reached on 6:30 AM - 5:00 PM, Monday - Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Bomberg can be reached on 571-272-4922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MTH
MTlt 5.29.07



KENNETH BOMBERG
SUPERVISORY PATENT EXAMINER